1. A method to form a magnetically pinned layer, comprising:

providing a layer of antiferromagnetic material having an edge; and

depositing a layer of magnetic material, a part of which contacts said edge

2. The method of claim 1 wherein said layer of magnetic material contacts said edge through overlap.

3. The method of claim 1 wherein said layer of magnetic material comprises a pair of ferromagnetic layers separated by, and contacting, an antiferromagnetic coupling layer.

4. A method to form a magnetically pinned layer, comprising:

providing a pair of antiferromagnetic layers, having opposing inside edges that are separated by no more than about 2 microns;

depositing a layer of magnetic material that is between, and in contact with, said antiferromagnetic layers; and

then magnetizing said layer of magnetic material.

5. The method of claim 6 wherein said layer of magnetic material contacts said inside edges through overlap.

6. The method of claim 4 wherein said layer of magnetic material comprises a pair of

magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

7. A process to manufacture a magnetic read head, comprising:

depositing a seed layer on a substrate;

forming, on said seed layer, a TSV stack that comprises a pinned layer on a non-magnetic spacer layer on a free layer;

forming a first bilayer liftoff mask on said pinned layer and then removing said pinned layer from all unmasked areas;

with said first bilayer liftoff mask still in place, depositing an antiferromagnetic layer that contacts said pinned layer;

removing said first bilayer liftoff mask and replacing it with a second bilayer liftoff mask, covering a larger area than the first bilayer liftoff mask, and then etching said TSV stack so that it acquires sloping sidewalls;

with said second bilayer liftoff mask still in place, depositing a longitudinal bias layer on said sloping sidewalls and then removing said second bilayer liftoff mask; and

depositing a pair of opposing conductive leads that contact said TSV, thereby forming said magnetic read head.

8. The method of claim 7 wherein said layer of magnetic material contacts said inside edges through overlap.

9. The method of claim 7 wherein said layer of magnetic material comprises a pair of magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

10. A process to manufacture a read head, comprising:

depositing a seed layer on a substrate;

forming, on said seed layer, a TSV stack that comprises a pinned layer on a non-magnetic spacer layer on a free layer;

depositing an antiferromagnetic layer on said pinned layer;

forming a single layer contact mask on said antiferromagnetic layer to define an active area for said TSV and then etching all unmasked areas whereby material from only said antiferromagnetic layer is removed;

then removing said contact mask;

using a bilayer liftoff mask, etching said TSV stack so that it acquires sloping sidewalls;

with said bilayer liftoff mask still in place, depositing a longitudinal bias layer on said sloping sidewalls and then removing said bilayer liftoff mask; and

depositing a pair of opposing conductive leads that contact said TSV, thereby forming said magnetic read head.

11. The process of claim 10 wherein said layer of magnetic material contacts said

inside edges through overlap.

12. The process of claim 10 wherein said layer of magnetic material comprises a pair of magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

13. A process to manufacture a magnetic read head, comprising:

depositing a first seed layer on a substrate;

forming a bilayer liftoff mask on said first seed layer and then ion milling whereby said substrate acquires sloping sidewalls;

with said bilayer liftoff mask still in place, depositing, on said substrate sloping sidewalls, a second seed layer;

with said bilayer liftoff mask still in place, depositing, on said second seed layer, an antiferromagnetic layer;

then removing said bilayer liftoff mask;

depositing, on said antiferromagnetic and first seed layers, a BSV stack that comprises a free layer on a non-magnetic spacer layer on a pinned layer; and

then forming a longitudinal bias layer on said sloping sidewalls and a pair of opposing conductive leads that contact said BSV, thereby forming said magnetic read head.

14. The process recited in claim 13 wherein said first seed layer is selected for optimization of the pinned layer.

15. The process recited in claim 13 wherein said second seed layer is selected for optimization of the antiferromagnetic layer.

16. The process of claim 13 wherein said layer of magnetic material contacts said inside edges through overlap.

17. The process of claim 13 wherein said layer of magnetic material comprises a pair of magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

18. A magnetically pinned layer, comprising:

a layer of antiferromagnetic material having an edge; and

a layer of magnetized material, a part of which contacts said edge.

19. The pinned layer described in claim 18 wherein said layer of magnetized material contacts said edge through overlap.

20. The pinned layer described in claim 18 wherein said layer of magnetized material

comprises a pair of magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

21. A magnetically pinned layer, comprising:

a pair of antiferromagnetic layers, having opposing inside edges that are separated by no more than about 2 microns; and

a layer of magnetized material between, and in contact with, said antiferromagnetic layers.

22. The pinned layer described in claim 21 wherein said layer of magnetized material contacts said antiferromagnetic layers through overlap.

23. The pinned layer described in claim 21 wherein said layer of magnetized material comprises a pair of magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

24. A magnetic read head, comprising:

a seed layer on a substrate;

on said seed layer, a TSV stack that comprises a pinned layer on a non-magnetic spacer layer on a free layer, said TSV stack having sloping sidewalls;

said pinned layer being confined to a centrally located active area and having

opposing edges each of which contacts an adjacent antiferromagnetic layer;

opposing longitudinal bias layers on said sloping sidewalls; and

a pair of opposing conductive leads that contact said TSV.

25. The read head described in claim 24 wherein said pinned layer contacts said adjacent antiferromagnetic layers through overlap.

26. The read head described in claim 24 wherein said pinned layer comprises a pair of magnetically antiparallel ferromagnetic layers contacting, and separated by, an antiferromagnetic coupling layer.

27. A magnetic read head, comprising:

a first seed layer on a top surface of a substrate having sloping sidewalls;

on said sloping sidewalls, a second seed layer;

an antiferromagnetic layer on said second seed layer;

on said antiferromagnetic and first seed layers, a BSV stack that comprises a free layer on a non-magnetic spacer layer on a pinned layer;

opposing longitudinal bias layers on said sloping sidewalls; and

a pair of opposing conductive leads that contact said BSV.

28. The read head described in claim 27 wherein said first seed layer was selected for

optimization of the pinned layer.

29. The read head described in claim 27 wherein said second seed layer was selected for optimization of the antiferromagnetic layer.

30. The read head described in claim 27 wherein said pinned layer contacts said adjacent antiferromagnetic layers through overlap.

31. The read head described in claim 27 wherein said pinned layer contacts said adjacent antiferromagnetic layers through abutment.